

WHAT IS CLAIMED IS:

1 *Sub 437* 1. A system for wireless communication within a  
2 retail refueling environment, comprising:

3 an in-store controller for processing at least one  
4 message relating to a retail refueling environment;

5 a server module, connected to the in-store  
6 controller, comprising at least one of a transmitter and  
7 a receiver;

8 at least one client module comprising at least one of  
9 a transmitter and a receiver;

10 at least one service device, connected to the at  
11 least one client module, for processing the at least one  
12 message; and

13 a wireless communication link for communicating the  
14 at least one message between the at least one of a  
15 transmitter and a receiver in the server module and the at  
16 least one of a transmitter and a receiver in the at least  
17 one client module.

1           2. The system of claim 1, wherein the step of  
2 processing further comprises generating the at least one  
3 message.

1           3. The system of claim 1, wherein the step of  
2 processing further comprises extracting the at least one  
3 message.

1           4. The system of claim 1, further comprising a  
2 serial interface for connecting the in-store controller to  
3 the server module.

1           5. The system of claim 1, further comprising a  
2 serial interface for connecting each of the at least one  
3 client module to a corresponding one of the at least one  
4 service device.

1           6. The system of claim 1, wherein the wireless  
2 communication link comprises a spread spectrum  
3 communication link.

1           7. The system of claim 1, wherein the at least one  
2 service device comprises a tank gauge monitor.

1           8. The system of claim 7, wherein the at least one  
2 message comprises refueling tank level information.

1           9. The system of claim 1, wherein the at least one  
2 service device comprises a leak detection system.

1           10. The system of claim 9, wherein the at least one  
2 message comprises leak detection information.

1           11. The system of claim 1, wherein the at least one  
2 message comprises customer transaction information.

1           12. The system of claim 1, wherein the at least one  
2 message is formatted according to a protocol link layer  
3 for transmission of at least one data packet, the at least  
4 one data packet comprising wired connection protocol  
5 information for a retail refueling environment.

13           13. The system of claim 1, wherein the at least one  
14 service device comprises at least one of a car wash  
15 controller, a satellite digital interface unit, and a  
16 price board controller.

1           14. A system for wireless communication within a  
2 retail refueling environment, comprising:

3           an indoor payment terminal (IPT) for processing at  
4 least one message relating to a retail refueling  
5 environment;

6           a server module, connected to the IPT, comprising at  
7 least one of a transmitter and a receiver;

8           at least one client module comprising at least one of  
9 a transmitter and a receiver;

10          at least one peripheral device, connected to the at  
11 least one client module, for processing the at least one  
12 message; and

13          a wireless communication link for communicating the  
14 at least one message between the at least one of a  
15 transmitter and a receiver in the server module and the at  
16 least one of a transmitter and a receiver in the at least  
17 one client module.

1           15. The system of claim 14, wherein the at least one  
2 peripheral device comprises at least one of a customer  
3 display, a pin-pad, a journal printer, a receipt printer,  
4 a keyboard, an input mouse, a touchscreen, a barcode  
5 scanner, a cash drawer, a check approval interface, a  
6 surveillance camera, and a money order machine.

1           16. The system of claim 14, wherein the wireless  
2 communication link comprises a spread spectrum  
3 communication link.

1           17. An in-store to forecourt communication system for  
2 wireless communication within a retail refueling  
3 environment, comprising:

4           a point of sale (POS) network controller for  
5 processing at least one message relating to a retail  
6 refueling environment;

7           a server module, connected to the POS network  
8 controller, comprising at least one of a transmitter and  
9 a receiver;

10          at least one client module comprising at least one of  
11 a transmitter and a receiver;

12          at least one forecourt controller device, connected  
13 to the at least one client module, for processing the at  
14 least one message; and

15          a wireless communication link for communicating the  
16 at least one message between the at least one of a  
17 transmitter and a receiver in the server module and the at  
18 least one of a transmitter and a receiver in the at least  
19 one client module.

1 18. The in-store to forecourt communication system  
2 of claim 17, wherein the step of processing further  
3 comprises generating the at least one message.

1 19. The in-store to forecourt communication system  
2 of claim 17, wherein the step of processing further  
3 comprises extracting the at least one message.

1 20. The in-store to forecourt communication system  
2 of claim 17, further comprising a serial interface for  
3 connecting the POS network controller to the server  
4 module.

1 21. The in-store to forecourt communication system  
2 of claim 17, further comprising a serial interface for  
3 connecting each of the at least one client module to a  
4 corresponding one of the at least one forecourt controller  
5 device.



6           22. The in-store to forecourt communication system  
7 of claim 17, wherein the at least one message formatted  
8 according to a protocol link layer for transmission of at  
9 least one data packet, the at least one data packet  
10 comprising wired connection protocol information for a  
11 retail refueling environment.

23. The in-store to forecourt communication system  
of claim 17, wherein the wireless communication link  
comprises a spread spectrum communication link.

24. The in-store to forecourt communication system  
of claim 17, wherein the POS network controller comprises  
a customer access terminal (CAT) network controller.

25. The in-store to forecourt communication system  
of claim 24, wherein the at least one forecourt controller  
device comprises a customer access terminal (CAT) controller  
board.

1           26. The in-store to forecourt communication system  
2 of claim 25, further comprising at least one user  
3 interface device communicating with the CAT controller  
4 board via a wireless interface.

1           27. The in-store to forecourt communication system  
2 of claim 17, wherein the POS network controller comprises  
3 a pump network controller.

1           28. The in-store to forecourt communication system  
2 of claim 27, wherein the at least one forecourt controller  
3 device comprises a pump computer.

4           29. The in-store to forecourt communication system  
5 of claim 28, further comprising at least one fuel  
6 dispensing component communicating with the pump computer  
7 via a wireless interface.

1           30. The in-store to forecourt communication system  
2 of claim 17, wherein the POS network controller comprises  
3 a radio frequency identification system (RFID) controller.

1           31. The in-store to forecourt communication system  
2 of claim 30, wherein the at least one forecourt controller  
3 device comprises a dispenser control board (DCB).

1           32. The in-store to forecourt communication system  
2 of claim 31, further comprising at least one customer  
3 identification device communicating with the dispenser  
4 control board via a wireless interface.

1           33. An intra-dispenser communication system for  
2 wireless communication within a retail refueling  
3 environment, comprising:

4           a dispenser controller device for processing at least  
5 one message relating to a retail refueling environment;

6           a server module, connected to the dispenser  
7 controller device, comprising at least one of a  
8 transmitter and a receiver;

9           at least one client module comprising at least one of  
10 a transmitter and a receiver;

11           at least one dispenser peripheral, connected to the  
12 at least one client module, for processing the at least  
13 one message; and

14           a wireless communication link for communicating the  
15 at least one message between the at least one of a  
16 transmitter and a receiver in the server module and the at  
17 least one of a transmitter and a receiver in the at least  
18 one client module.

1           34. The intra-dispenser communication system of claim  
2 33, further comprising a serial interface for connecting  
3 the dispenser controller device to the server module.

1           35. The intra-dispenser communication system of claim  
2 33, further comprising a serial interface for connecting  
3 each of the at least one client module to a corresponding  
4 one of the at least one dispenser peripheral.

1           36. The intra-dispenser communication system of claim  
2 33, wherein the wireless communication link comprises a  
3 spread spectrum communication link.

1           37. The intra-dispenser communication system of claim  
2 33, wherein the at least one message is formatted  
3 according to a protocol link layer for transmission of at  
4 least one data packet, the at least one data packet  
5 comprising wired connection protocol information for a  
6 retail refueling environment.

1           38. The intra-dispenser communication system of claim  
2           33, wherein the dispenser controller device comprises a  
3           customer access terminal (CAT) controller board.

1           39. The intra-dispenser communication system of claim  
2           38, wherein the least one dispenser peripheral comprises  
3           a user interface device.

1           40. The intra-dispenser communication system of claim  
2           39, wherein the user interface device comprises at least  
3           one of a receipt printer, a customer display, a keypad, a  
4           cash acceptor, a smartcard reader, a barcode reader, and  
5           an automatic refueling robot controller.

1           41. The intra-dispenser communication system of claim  
2           33, wherein the dispenser controller device comprises a  
3           pump computer.

1           42. The intra-dispenser communication system of claim  
2           41, wherein the least one dispenser peripheral comprises  
3           a fuel dispensing component.

1           43. The intra-dispenser communication system of claim  
2           42, wherein the fuel dispensing component comprises at  
3           least one of a price/volume display, a stop button, an  
4           emergency stop button, a select-to-start button, a push-  
5           to-start button, a nozzle boot microswitch, a valve, a  
6           vapor recovery system, and an automatic refueling robot.

1           44. The intra-dispenser communication system of claim  
2           33, wherein the dispenser controller device comprises a  
3           dispenser control board.

1           45. The intra-dispenser communication system of claim  
2           44, wherein the least one dispenser peripheral comprises  
3           a customer identification device.

46. The intra-dispenser communication system of claim 45, wherein the customer identification device comprises at least one of a bezel reader, a card reader, a smartcard transceiver, a tag transceiver, a nozzle antenna reader, a handheld reader, and a vehicle on-board system.

1. The first step is to identify the problem or question that needs to be addressed. This involves understanding the context and the specific requirements of the task.



1           47. A method for wireless communication within a  
2 retail refueling environment, comprising the steps of:

3           generating at least one message formatted according  
4 to a protocol link layer for communication of at least one  
5 data packet, the at least one data packet comprising  
6 information relating to a retail refueling environment;

7           transmitting the at least one message over a wireless  
8 communication link;

9           receiving the at least one message via the wireless  
10 communication link; and

11          processing the at least one message to extract the  
12 information relating to the retail refueling environment.

1           48. The method of claim 47, wherein the at least one  
2 data packet further comprises wired connection protocol  
3 information.

1           49. The method of claim 47, wherein the at least one  
2 message is further formatted to include a source address  
3 field identifying the address of a transmitter module that  
4 performs the step of transmitting.

1           50. The method of claim 47, wherein the at least one  
2 message is further formatted to include a destination  
3 address field identifying the address of a receiver module  
4 that performs the step of receiving.

1           51. The method of claim 47, wherein the at least one  
2 message is further formatted to include a message command  
3 field, the message command field indicating at least one  
4 of an attachment of a data packet, an acknowledgment/non-  
5 acknowledgment response, an in-range query, and an in-  
6 range response.

1           52. The method of claim 47, wherein the at least one  
2 message is further formatted to include at least one of a  
3 message sequence number field, and a message length field  
4 indicating a total length of the at least one message.

1           53. The method of claim 47, wherein the at least one  
2 message is further formatted to include at least one of a  
3 start-of-text field, an end-of-text field, and a cyclical  
4 redundancy check field.

1           54. The method of claim 47, wherein the at least one  
2 data packet comprises customer transaction information.

1           55. The method of claim 47, wherein the at least one  
2 data packet comprises pump control information.

1           56. The method of claim 47, wherein the at least one  
2 data packet comprises customer identification information.